

1872 MNRAS. 32: 245M  
given; it was in the constellation *Gemini*, and between *Jupiter* and the two principal stars.

On intently watching these rays of *white* light, I found they had a slow motion in the same direction as the Earth on its axis: thus showing that the whole must have been revolving very slowly round the radiating point, taking, I should think, five or six hours to complete a revolution. Many of the rays were  $60^\circ$  to  $70^\circ$  long, and running direct from the centre. The light of the stars was very little interfered with when a streamer passed over them: I should say not at all.

Now, should you have any other description of this Aurora Borealis and the radiant point altogether different, it would give us some clue whether all this emanates from the atmosphere or above it.

At the beginning of last month I noticed a very large halo round the Moon, quite  $40^\circ$  to  $60^\circ$  in diameter, a complete circle; and yet the Moon was very little more than a thin crescent. This I thought strange and curious, and, thinking it may prove interesting, have mentioned it here.

Dover, Feb. 8, 1872.

### Occultation of $\zeta$ Tauri, December 8th, 1870.

By J. Maguire, Esq.

In the last Supplementary Number of the *Monthly Notices* there is a communication from the Rev. J. Spear, from Churk-rata, in India, in which the following statement occurs:—

“I am sorry I have not been able to record any observations of importance, except perhaps the error in the calculation of the occultation of  $\zeta$  Tauri.”

“December 8. Watched for the occultation of  $\zeta$  Tauri. Greenwich mean time of apparent conjunction in right ascension of Moon and star  $5^h 0^m 3^s$ . Limiting parallels N  $90^\circ$ -N  $19^\circ$ . No occurrence. The Moon passed at least  $10'$  north of the star to the best of my judgment.”

The geographical position given is—

Latitude .. .. ..	$30^\circ 42' 4''$
Longitude .. .. ..	$5^h 11^{10} 42^s$

I may add that the right ascension at conjunction is  $5^h 0^m 39^s$  in the *Nautical Almanac*, and the latitude, although not marked N., I have assumed to be so.

If, then, the error above mentioned refers to what took place on the 8th December, 1870, it appears that Mr. Spear, finding

2246  
1922  
2246  
1922

himself well within the limiting parallels, watched with confidence for the occultation of  $\zeta$  Tauri. But his surprise may be imagined when he found that the Moon's lower limb at its nearest approach was in his estimation at least  $10'$  north of the star. He records the words "no occurrence," and leaves us to infer that he has discovered an important error in the *Nautical Almanac*.

If there be many observers who take it for granted that an occultation must occur at all latitudes within the limiting parallels, then I fear the *Nautical Almanac* will get a bad name.\*

I have calculated the limiting parallels, which I find the same as in the *Nautical Almanac*. And a calculation for the position given above shows that the nearest approach of the Moon's centre to the star was  $19'3$ . The moon's lower limb was, therefore, within  $4'5$  of the star. This differs materially from Mr. Spear's  $10'$ . The question, however, is not one of proximity, but whether a limiting parallel in such a case as this is a delusion and a snare.

*Norwich, Nov. 13, 1871.*

---

### *Discovery of the Minor Planet (118) Peitho.*

This planet was discovered by Dr. R. Luther, at Bilk, near Dusseldorf, on March 15, 1872. It was of the eleventh magnitude. The following elements have been calculated by Professor Theodore von Oppolzer, from observations made on March 15, 26, and April 4:—

Epoch, 1872, March 31<sup>0</sup>, Berlin Mean Time.

L	=	$160^{\circ} 53' 44''$	
M	=	$84^{\circ} 25' 12''$	
$\pi$	=	$76^{\circ} 28' 32''$	
Node	=	$47^{\circ} 14' 25.5''$	Mean Equinox 1872 <sup>0</sup>
,	=	$7^{\circ} 50' 11.3''$	
$\phi$	=	$9^{\circ} 51' 25''$	
$\mu$	=	$928''\cdot402$	
log $a$	=	0.388181	
Sidereal revolution = 1396 days.			

[\* In the Explanation of the Elements of Occultations, at the end of the *Nautical Almanac*, it is stated that "by Limiting Parallels are to be understood those parallels of latitude beyond which an occultation cannot possibly occur. . . . Limiting parallels are useful to indicate whether, at a given conjunction of a star with the Moon, the positions are likely to produce an occultation in a given latitude, and thus to save considerable labour to the computer." Ed.]